

Claims

What is claimed is:

1. An image-processing device comprising:

a solid-state image pickup element provided with a plurality of unit pixels, each unit pixel including a photo diode and a plurality of transistors for detecting an optical signal;

a circuit for changing a gate-applied voltage that changes a voltage applied to each gate of a plurality of the transistors;

a first voltage source coupled to the circuit for changing gate-applied voltage; and

a second voltage source coupled to the circuit for changing gate-applied voltage;

wherein the circuit for changing a gate-applied voltage applies at least one of a predetermined voltage to each gate of a plurality of the transistors from the first voltage source while in an accumulation state when carriers are generated from the photo diode in response to received light, and another predetermined voltage from the second voltage source while in a reading out state when a signal in response to carriers accumulated in the accumulation state is read out.

2. An image-processing device according to claim 1 further comprising:

a third voltage source coupled to the circuit for changing gate-applied voltage;

wherein the circuit for changing a gate-applied voltage applies a third predetermined voltage to each gate of a plurality of the transistors from the third voltage source while in a clearing state when residual carriers in the solid-state image pickup device are excluded from the solid-state image pickup device.

3. An image-processing device according to claim 1 further comprising:

a plurality of gate voltage supplying circuits coupled to the gates of a plurality of the transistors;

wherein the changed applied voltage is applied to a plurality of the gate voltage supplying circuits from the circuit for changing a gate-applied voltage.

4. An image-processing device according to claim 1 further comprising:

a plurality of gate voltage supplying circuits coupled to the gates of a plurality of the transistors;

wherein each of a plurality of the gate voltage supplying circuits includes the circuit for changing a gate-applied voltage.

5. A method of image-processing that picks up an image with a solid-state image pickup element provided with a plurality of unit pixels, each unit pixel including a photo diode and a plurality of transistors for detecting an optical signal, the method comprising:

applying a predetermined voltage to each gate of a plurality of the transistors from a first voltage source while in an accumulation state when carriers are generated from the photo diode in response to received light; and

applying a predetermined voltage to each gate of a plurality of the transistors from a second voltage source while in a reading out state when a signal in response to carriers accumulated in the accumulation state is read out.

6. A solid-state image pickup device comprising:

a solid-state image pickup element provided with a plurality of unit pixels, each unit pixel including a photo diode and a plurality of transistors for detecting an optical signal;

a circuit for changing a gate-applied voltage that changes a voltage applied to each gate of a plurality of the transistors; and

a regulator that produces a first voltage and a second voltage;

wherein the circuit for changing gate-applied voltage applies at least one of the first voltage output from the regulator to each gate of a plurality of the transistors while in an accumulation state when carriers are generated from the photo diode in response to received light, and the second voltage output from the regulator to each gate of a plurality of the transistors while in a reading out state when a signal in response to carriers accumulated in the accumulation state is read out.